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6 February 2007

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SUBJECT: Report No. 06-04A1, "Transportability Testing of the Joint Modular Intermodal Platform (JMIP)", TP-94-01, "Transportability Testing Procedures"

1. Enclosed please find subject report dated November 2006.

2. The POC is the undersigned, SJMAC-DEV, DSN 956-8908.

FOR THE DIRECTOR:

for JERRY W. BEAVER
Chief, Validation Engineering Division

Encl
as

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FINAL REPORT
NOVEMBER 2006

REPORT NO. 06-04A1

TRANSPORTABILITY TESTING OF THE JOINT MODULAR INTERMODAL PLATFORM (JMIP) TP-94-01, "TRANSPORTABILITY TESTING PROCEDURES"

Prepared for:

TACOM/ ARDEC
Logistics Research and Development Activity
ATTN: AMSRD-AAR-AIL-F
Picatinny Arsenal, NJ 07806

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REPORT NO. 06-04A1 **NOVEMBER 2006**
TRANSPORTABILITY TESTING OF THE
JOINT MODULAR INTERMODAL PLATFORM (JMIP)
TP-94-01, REV. 2, JUNE 2004, "TRANSPORTABILITY TESTING PROCEDURES"

ABSTRACT

The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SJMAC-DEV), was tasked by the Logistics Research and Development Activity (AMSRD-AAR-AIL-F), Picatinny Arsenal, NJ to conduct evaluation transportability retesting on the Joint Modular Intermodal Platform (JMIP) manufactured by SEA BOX Inc, East Riverton, NJ. The testing was conducted in accordance with TP-94-01, Revision 2, June 2004 "Transportability Testing Procedures."

The major change on the JMIP from the unit previously tested (06-04A) was that the container restraint mechanisms were changed to cams which are pinned in position. The restraint mechanisms are no longer the retractable arms as previously tested.

The objective of the testing was to evaluate the JMIP when transportability tested in accordance with TP-94-01, Revision 2, June 2004 for use during the Limited Military Utility Assessment (LMUA).

The following observations resulted from the testing of JMIP:

1. Prior to testing, the pins holding the rear roller assemblies bent.
2. The nuts holding the pins which supported the A-frame in the container transport position were damaged which was a result of picking up the loaded JMIP using the PLS truck and having the JMIP A-frame in the container transport position and not the PLS position. The nuts and bolts were replaced and rewelded prior to

testing. Clarification needs to be provided on the JMIP to easily identify that the A-frame is in the proper position.

3. The JMIP rear bumper pads were attached with adhesive only. One bumper pad fell off prior to testing.

4. The rails at the front of the JMIP did not rest on the PLS truck supports (frog feet).

5. During transport in the intermodal container the pins holding the cams in the container shoring slot failed and deformed.

The following conclusions resulted from the testing of JMIP:

1. Care must be taken to verify that the A-frame locking pins are properly engaged when the JMIP is picked up with a load handling system.

2. The JMIP, as currently designed, is adequate to be used to transport the Navy JMIC containers with ammunition, on/off road, using a Load Handling System equipped vehicle during the Limited Military Utility Assessment (LMUA). (Example – PLS truck)

3. The maximum gross weight (platform and payload weight) is not to exceed 15,000 pounds during the LMUA.

4. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition in an intermodal container.

Prepared by:

PHILIP W. BARICKMAN
Lead Validation Engineer

Reviewed by:

JERRY W. BEAVER
Chief, Validation Engineering Division

U.S. ARMY DEFENSE AMMUNITION CENTER

VALIDATION ENGINEERING DIVISION
MCALESTER, OK 74501-9053

REPORT NO. 06-04A1

Transportability Testing of the Joint Modular Intermodal Platform (JMIP)
TP-94-01, Revision 2, June 2004 "Transportability Testing Procedures"

TABLE OF CONTENTS

PART 1 – INTRODUCTION

A. BACKGROUND. The U.S. Army Defense Ammunition Center (DAC), Validation Engineering Division (SJMAC-DEV), was tasked by the Logistics Research and Development Activity (AMSRD-AAR-AIL-F), Picatinny Arsenal, NJ to conduct transportability retesting on the Joint Modular Intermodal Platform (JMIP) manufactured by SEA BOX Inc, East Riverton, NJ. The testing was conducted in accordance with TP-94-01, Revision 2, June 2004, "Transportability Testing Procedures."

The major change on the JMIP from the unit previously tested (06-04A), was that the container restraint mechanisms were changed from retractable arms to cams which are pinned in position.

B. AUTHORITY. This test was conducted IAW mission responsibilities delegated by the U.S. Army Joint Munitions Command (JMC), Rock Island, IL. Reference is made to the following:

1. AR 740-1, 15 June 2001, Storage and Supply Activity Operation.

2. OSC-R, 10-23, Mission and Major Functions of U.S. Army Defense Ammunition Center (DAC) 21 Nov 2000.

C. OBJECTIVE. The objective of the testing was to evaluate the Joint Modular Intermodal Platform (JMIP) when transportability tested in accordance with TP-94-01, Revision 2, June 2004 for use during the Limited Military Utility Assessment (LMUA).

D. OBSERVATIONS.

1. Prior to testing the pins holding the rear roller assemblies bent.

2. The nuts holding the pins which supported the A-frame in the container transport position were damaged which was a result of picking up the loaded JMIP using the PLS truck and having the JMIP A-frame in the container transport position

and not the PLS position. The nuts and bolts were replaced and rewelded prior to testing. Clarification needs to be provided on the JMIP to easily identify that the A-frame is in the proper position.

3. The JMIP rear bumper pads were attached with adhesive only. One bumper pad fell off prior to testing.

4. The rails at the front of the JMIP did not rest on the PLS truck supports (frog feet).

5. During transport in the intermodal container the pins holding the cams in the container shoring slot failed and deformed.

E. CONCLUSION.

1. Care must be taken to verify that the A-frame locking pins are properly engaged when the JMIP is picked up with a load handling system.

2. The JMIP. As currently designed, is adequate to be used to transport the Navy JMIC containers with ammunition, on/off road, using a Load Handling System equipped vehicle during the Limited Military Utility Assessment (LMUA). (Example – PLS truck)

3. The maximum gross weight (platform and payload weight) is not to exceed 15,000 pounds during the LMUA.

4. The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition in an intermodal container.

PART 2 - ATTENDEES

ATTENDEE	MAILING ADDRESS
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Michael S. Bartosiak DSN 956-8083 (918) 420-8083	Director U.S. Army Defense Ammunition Center ATTN: SJMAC-DET 1 C Tree Road, Bldg. 35 McAlester, OK 74501-9053
Richard Garside DSN 956-8050 (918) 420-8050	Director U.S. Army Defense Ammunition Center ATTN: SJMAC-DET 1 C Tree Road, Bldg. 35 McAlester, OK 74501-9053
Tom Sieffert (973) 724-7446	U.S. Army Armament Research, Development and Engineering Center Logistics Research & Engineering Dir. ATTN: AMSRD-AAR-AIL-F Picatinny Arsenal, NJ 07806-5001

PART 3 - TEST EQUIPMENT

1. Joint Modular Intermodal Platform
   Manufactured by SEA BOX, East Riverton, NJ
   Model Number: J-MIP LN702
   Serial Number: 00002
   Date of Manufacture: 27 February 2006
   Tare Weight: 3,960 pounds

2. Joint Modular Intermodal Container
   Manufactured by British Aerospace Engineering
   Weight: 310 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43-1/4 inches

3. Joint Modular Intermodal Container
   Manufactured by Naval PHST Center - Earle, NJ
   Closed JMIC
   Weight: 325 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43 inches

4. Joint Modular Intermodal Container
   Manufactured by Naval PHST Center – Earle, NJ
   Open Framed JMIC
   Weight: 285 pounds
   Length: 51-3/4 inches
   Width: 43-3/4 inches
   Height: 43 inches

5. Palletized Load System Truck
   Model #: M1074
   Manufactured by Oshkosh Truck Corporation, Oshkosh, WI
   ID #: 10T2P1NH6N1044011
   NSN: 2320-01-304-2277
   Serial #: 44011
   Curb Weight: 55,000 pounds

6. Truck, Tractor, MTV, M1088 A1
   ID #: J0231
   NSN: 2320 01 447 3893
   VSN: NL1FR5
   MFG Serial #: T-018447EFJM
   Weight: 19,340 pounds

7. Semitrailer, flatbed, breakbulk/container transporter, 34 ton
   Model #: M872A1
   Manufactured by Heller Truck Body Corporation, Hillsdale, NJ
   ID #: 11-1505 NX05NZ
   NSN: 2330 01 109 8006
   Weight: 19,240 pounds

8. Intermodal Container
   ID # CMCU 200006-8
   Date of Manufacture: 06/99
   Manufactured by Charleston Marine Containers, Charleston, SC
   Tare Weight: 4,870 pounds
   Maximum Gross Weight: 67,200 pounds

PART 4 - TEST PROCEDURES

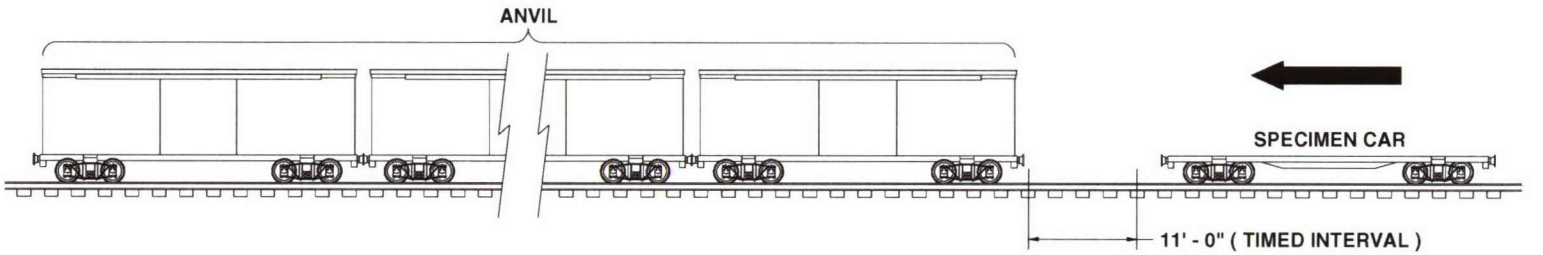
The test procedures outlined in this section were extracted from TP-94-01, "Transportability Testing Procedures," Revision 2, June 2004, for validating tactical vehicles and outloading procedures used for shipping munitions by tactical truck, railcar, and ocean-going vessel.

The rail impact will be conducted with the loaded intermodal container secured directly to the railcar. Inert (non-explosive) items were used to build the load. The test loads were prepared using the blocking and bracing procedures proposed for use with munitions (***see Part 6- Drawings for procedures***). The weight and physical characteristics (weights, physical dimensions, center of gravity, etc.) of the test loads were similar to live (explosive) ammunition.

A. RAIL TEST. RAIL IMPACT TEST METHOD. The test load or vehicle will be secured to a flatcar. The equipment needed to perform the test will include the specimen (hammer) car, four empty railroad cars connected together to serve as the anvil, and a railroad locomotive. The anvil cars will be positioned on a level section of track with air and hand brakes set and with draft gears compressed. The locomotive unit will push the specimen car toward the anvil at a predetermined speed, then disconnect from the specimen car approximately 50 yards away from the anvil cars allowing the specimen car to roll freely along the track until it strikes the anvil. This will constitute an impact. Impacting will be accomplished at speeds of 4, 6, and 8.1 mph in one direction and at a speed of 8.1 mph in the reverse direction. The tolerance for the speeds is plus 0.5 mph, minus 0.5 mph for the 4 mph and 6 mph impacts, and plus 0.5 mph, minus 0 mph for the 8.1 mph impacts. The impact speeds will be determined by using an electronic counter to measure the time for the specimen car to traverse an 11-foot distance immediately prior to contact with the anvil cars (see Figure 1).

ASSOCIATION OF AMERICAN RAILROADS (AAR)

STANDARD TEST PLAN



4 BUFFER CARS (ANVIL)
WITH DRAFT GEAR
COMPRESSED AND AIR BRAKES IN A SET POSITION

ANVIL CAR TOTAL WT. 250,000 LBS (APPROX)

SPECIMEN CAR IS RELEASED BY SWITCH ENGINE TO
ATTAIN: IMPACT NO. 1 @ 4 MPH
IMPACT NO. 2 @ 6 MPH
IMPACT NO. 3 @ 8.1 MPH

THEN THE CAR IS REVERSED AND RELEASED BY SWITCH ENGINE TO ATTAIN:

IMPACT NO. 4 @ 8.1 MPH

Figure 1. Rail Impact Sketch

B. ON/OFF ROAD TEST.

1. HAZARD COURSE. The test load or vehicle will be transported over the 200-foot-long segment of concrete-paved road consisting of two series of railroad ties projecting 6 inches above the level of the road surface. The hazard course will be traversed two times (see Figure 2).

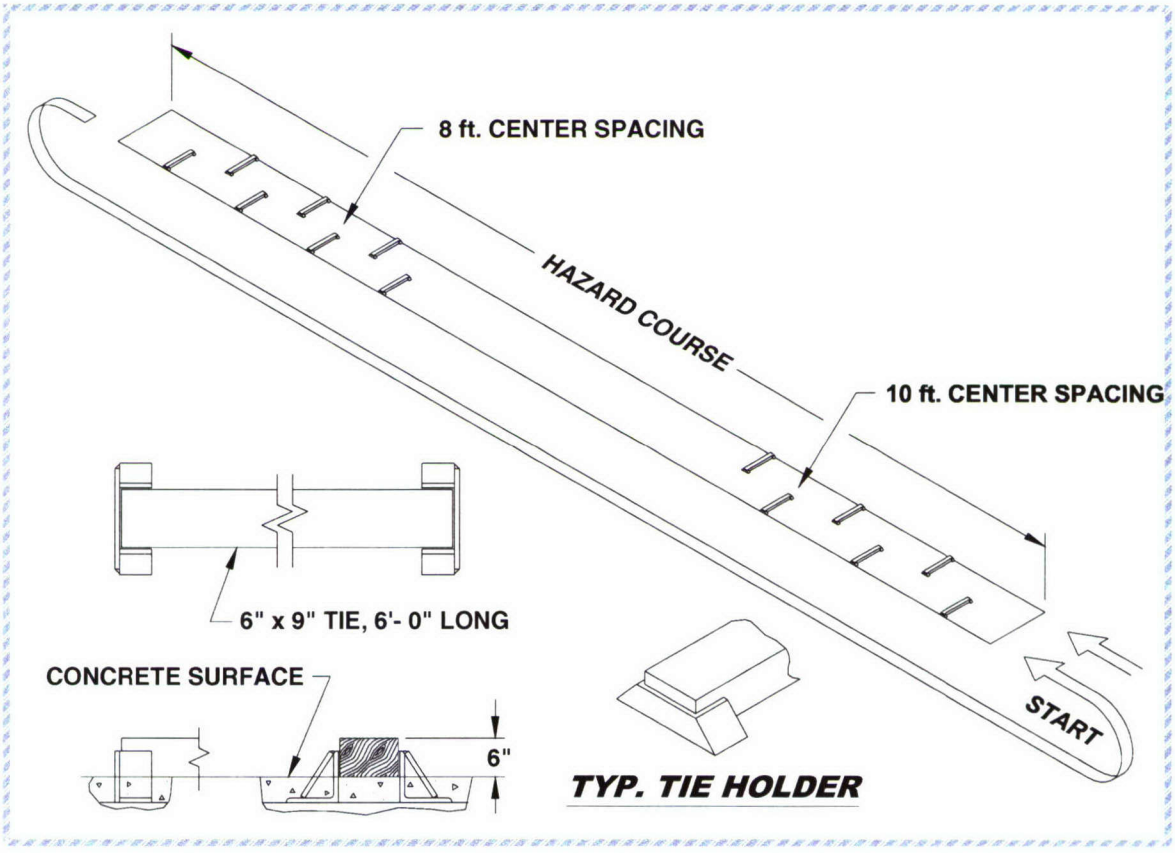


Figure 2. Hazard Course Sketch

a. The first series of 6 ties are spaced on 10-foot centers and alternately positioned on opposite sides of the road centerline for a distance of 50 feet.

b. Following the first series of ties, a paved roadway of 75 feet separates the first and second series of railroad ties.

c. The second series of 7 ties are spaced on 8-foot centers and alternately positioned on opposite sides of the road centerline for a distance of 48 feet.

d. The test load is driven across the hazard course at speeds that will produce the most violent vertical and side-to-side rolling reaction obtainable in traversing the hazard course (approximately 5 mph).

2. ROAD TRIP. The test load or vehicle will be transported for a distance of 30 miles over a combination of roads surfaced with gravel, concrete, and asphalt. The test route will include curves, corners, railroad crossings and stops and starts. The test load or vehicle will travel at the maximum speed for the particular road being traversed, except as limited by legal restrictions.

3. PANIC STOPS. During the road trip, the test load or vehicle will be subjected to three (3) full airbrake stops while traveling in the forward direction and one in the reverse direction while traveling down a 7 percent grade. The first three stops are at 5, 10, and 15 mph while the stop in the reverse direction is approximately 5 mph. This testing will not be required if the Rail Impact Test is performed.

4. WASHBOARD COURSE. The test load or vehicle will be driven over the washboard course at a speed that produces the most violent response in the vertical direction.

C. OCEAN-GOING VESSEL TEST. Shipboard Transportation Simulator (Test Method 5). The Shipboard Transportation Simulator (STS) is used for testing loads in 8-foot-wide by 20-foot-long intermodal freight containers. The specimen shall be positioned onto the STS and securely locked in place using the cam lock at each corner. Using the procedure detailed in the operating instructions, the STS shall begin oscillating at an angle of 30 degrees, plus or minus 2 degrees, either side of vertical center and a frequency of 2 cycles-per-

minute (30 seconds, plus or minus 2 seconds) for a duration of two (2) hours. This frequency shall be observed for apparent defects that could cause a safety hazard. The frequency of oscillation shall then be increased to 4 cycles-per-minute (15 seconds, plus or minus one second per cycle) and the apparatus operated for two (2) hours. If an inspection of the load does not indicate an impending failure, the frequency of oscillation shall be further increased to 5 cycles-per-minute (12 seconds, plus or minus one second per cycle), and the apparatus operated for four (4) hours. The operation does not necessarily have to be continuous; however, no changes or adjustments to the load or load restraints shall be permitted at any time during the test. After once being set in place, the test load (specimen) shall not be removed from the apparatus until the test has been completed or is terminated.

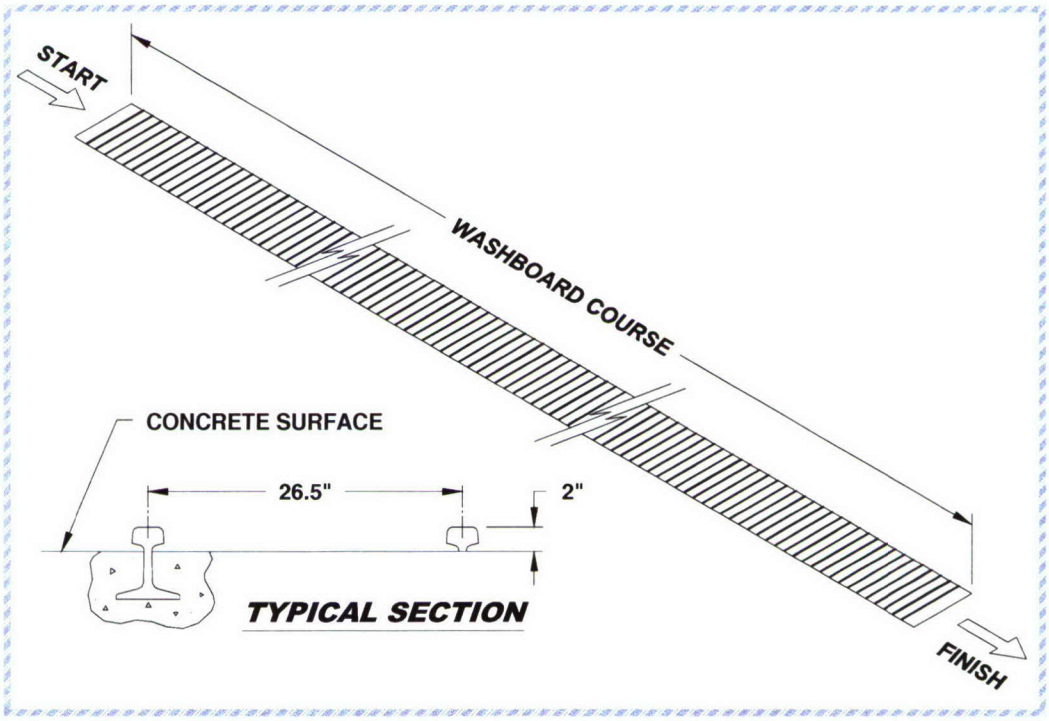


Figure 3. Washboard Course Sketch

PART 5 - TEST RESULTS

5.1

Test Specimen: SEA BOX JMIP on the PLS Truck

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 22 August 2006

Gross Weight: 15,480 pounds (Including JMIP, interface frames and JMICs).

Notes:

1. Prior to the start of testing, the pins holding the wheels in position bent.

Photo 1. Bent Roller Pin

2. The nuts holding the pins which supported the A-frame in the container transport position were damaged which was a result of picking up the loaded JMIP using the PLS truck and having the JMIP A-frame in the container transport position and not the PLS position. The nuts and bolts were replaced and rewelded prior to testing. Clarification needs to be provided on the JMIP to easily identify that the A-frame is in the proper lifting position.

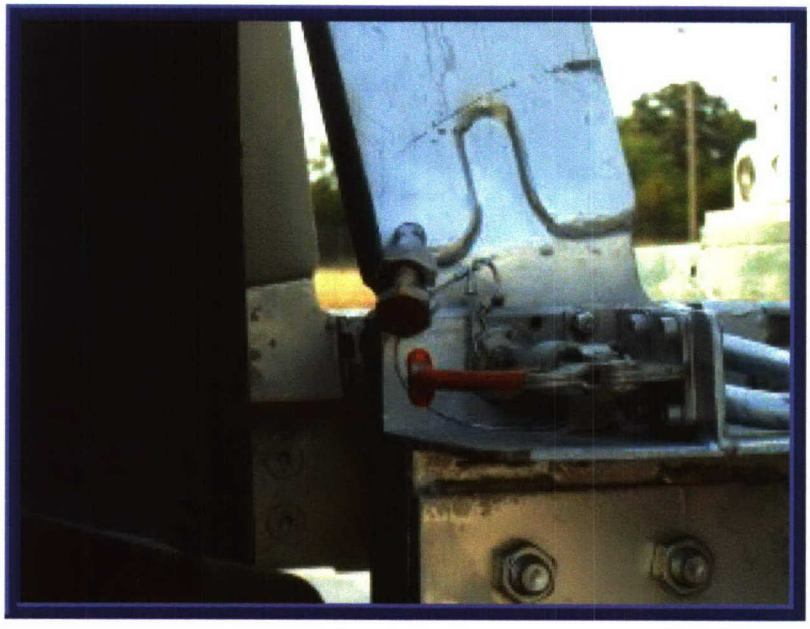


Photo 2. Damaged Container Transport Nut.

3. The JMIP rear bumper pads were attached with adhesive only. One bumper pad fell off prior to testing.

4. When on the PLS truck, the rails at the front of the JMIP did not rest on the support (frog feet) of the PLS truck. The base of the JMIP, between the main rails, rested on the PLS load handling system.

A. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 3. Hazard Course Testing of the SEA BOX JMIP

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	21 Seconds	7
2	20 Seconds	7

Figure 4.

Remarks:

1. Figure 4 lists the average speeds of the test load through the Hazard Course.
2. Inspection following Passes 1 & 2 did not reveal any damage to the JMIP.

2. **ROAD TRIP:**

Remarks:

1. The Road Trip was conducted between the Road Hazard Course Passes #2 and #3.
2. Inspection following the Road Trip revealed no damage or movement of the JMIP.

3. **PANIC STOPS:** Inspection following completion of each of the Panic Stops did not reveal any damage or movement of the JMIP.

4. **HAZARD COURSE:**

Pass No.	Elapsed Time	Avg. Velocity (mph)
3	22 Seconds	6
4	21 Seconds	7

Figure 5.

Remarks:

1. Figure 5 lists the average speeds of the test load through the Hazard Course.
2. Inspection following Passes 3 & 4 did not reveal any damage to the JMIP.

5. **WASHBOARD COURSE:**

Remark:

Inspection following the Washboard Course did not reveal any damage to the JMIP.

Photo 4. Washboard Course Testing JMIP.

B. OBSERVATION: Clarification needs to be provided on the JMIP to easily identify that the A-frame is in the proper lifting position. This will prevent damaging the pins/nuts from improper lifting using a load handling system when the A-frame is in the container transport position.

C. CONCLUSION:

1. Care must be taken to verify that the A-frame locking pins are properly engaged when the JMIP is picked up with a load handling system.

2. The JMIP, as currently designed, is adequate, to be used to transport the Navy JMIC containers with ammunition, on/off road, using a Load Handling System equipped vehicle during the Limited Military Utility Assessment (LMUA). (Example – PLS truck)

3. The maximimum gross weight (platform and payload weight) is not to exceed 15,000 pounds during the LMUA.

5.2

Test Specimen: SEA BOX JMIP in an Intermodal Container.

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 23 August 2006

Gross Weight: 20,350 pounds (Including JMIP, interface frames, JMICs and intermodal container).

Notes:

1. The pins used to hold the cams in the intermodal container shoring slot were not long enough to adequately restrain the cams. Also, the pins did not have any stop to prevent the pins from backing out.

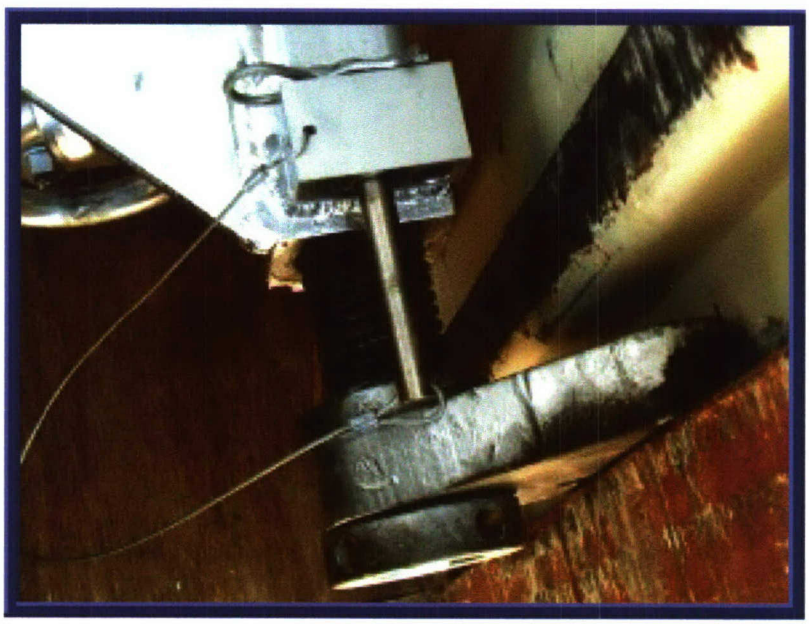


Photo 5. Pin not Properly Engaging Cam.

2. Longer pins were substituted and were pinned on each side of the block to prevent backing out during testing.

Photo 6. Replacement Pin.

A. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 7. Hazard Course Testing of the JMIP in the Intermodal Container.

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	24 Seconds	6

Figure 6.

Remarks:

1. Figure 6 lists the average speed of the test load through the Hazard Course.
2. Inspection following the completion of Pass #1 revealed that the pin on the driver's side sheared and the cam disengaged the shoring slot.

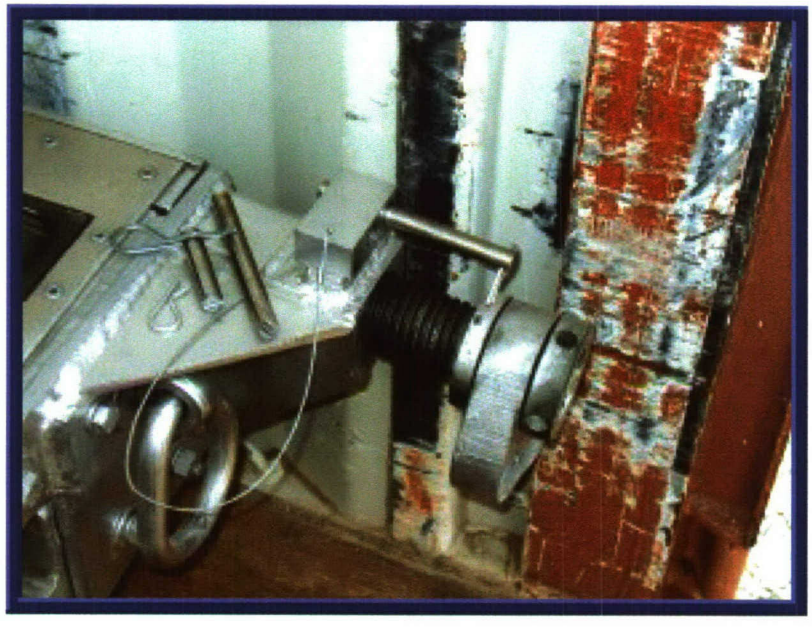


Photo 8. Sheared Pin and Disengaged Cam

B. OBSERVATION: The pins used to hold the cams in position were not of sufficient strength to hold the cams in position.

C. CONCLUSION: The JMIP, as currently designed, is **not adequate**, for the transportation of ammunition in an intermodal container.

5.3

Test Specimen: SEA BOX JMIP in an intermodal container.

Payload: 4 BAE JMICs and 2 Navy JMICs.

Testing Date: 23 August 2006

Gross Weight: 20,350 pounds (Including JMIP, interface frames, JMICs and intermodal container).

Note: All pins used in the prior testing were replaced. The replacement pins were only pinned on the back side of the block and had a thicker diameter at the front of the block. This was done to prevent the pin from backing out during testing.

Photo 9. Replacement Pin

A. ON/OFF ROAD TESTS.

1. HAZARD COURSE.

Photo 10. Hazard Course Testing of the JMIP in the Intermodal Container

Pass No.	Elapsed Time	Avg. Velocity (mph)
1	21	7

Figure 7.

Remarks:

1. Figure 7 lists the average speeds of the test load through the Hazard Course.
2. Inspection following the completion of Pass #1 revealed that the pin on the passenger side sheared and the cams disengaged the shoring slots.

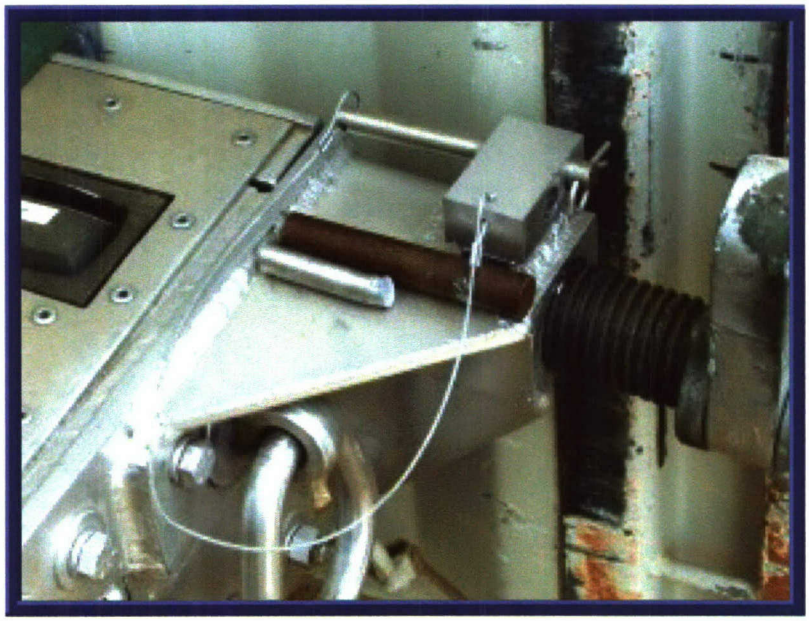


Photo 11. Damaged Pin.

B. <u>OBSERVATIONS</u>:

1. The pins used to hold the cams in position were not of sufficient strength to hold the cams in position.

2. The cams did not properly engage the container shoring slot. One cam would always over rotate (past 90°) in the shoring slot.

C. <u>CONCLUSION</u>: The JMIP, as currently designed, is **<u>not adequate</u>** for the transportation of ammunition in an intermodal container.

PART 6 – DRAWINGS

The following drawing represents the load configuration that was subjected to the test criteria.

TEST SKETCH

LOADING AND BRACING OF JOINT MODULAR INTERMODAL CONTAINERS (JMICS) ON THE JOINT MODULAR INTERMODAL PLATFORM (JMIP)

THIS TEN PAGE DOCUMENT DEPICTS NAVY AND BAE JMIC PROTOTYPES ON A SEABOX PROTOTYPE JMIP FOR INTEGRATION TRANSPORTABILITY TESTING AT AN APPROXIMATE 15,000 LBS GROSS LOAD

PREPARED DURING JULY 2006 BY:
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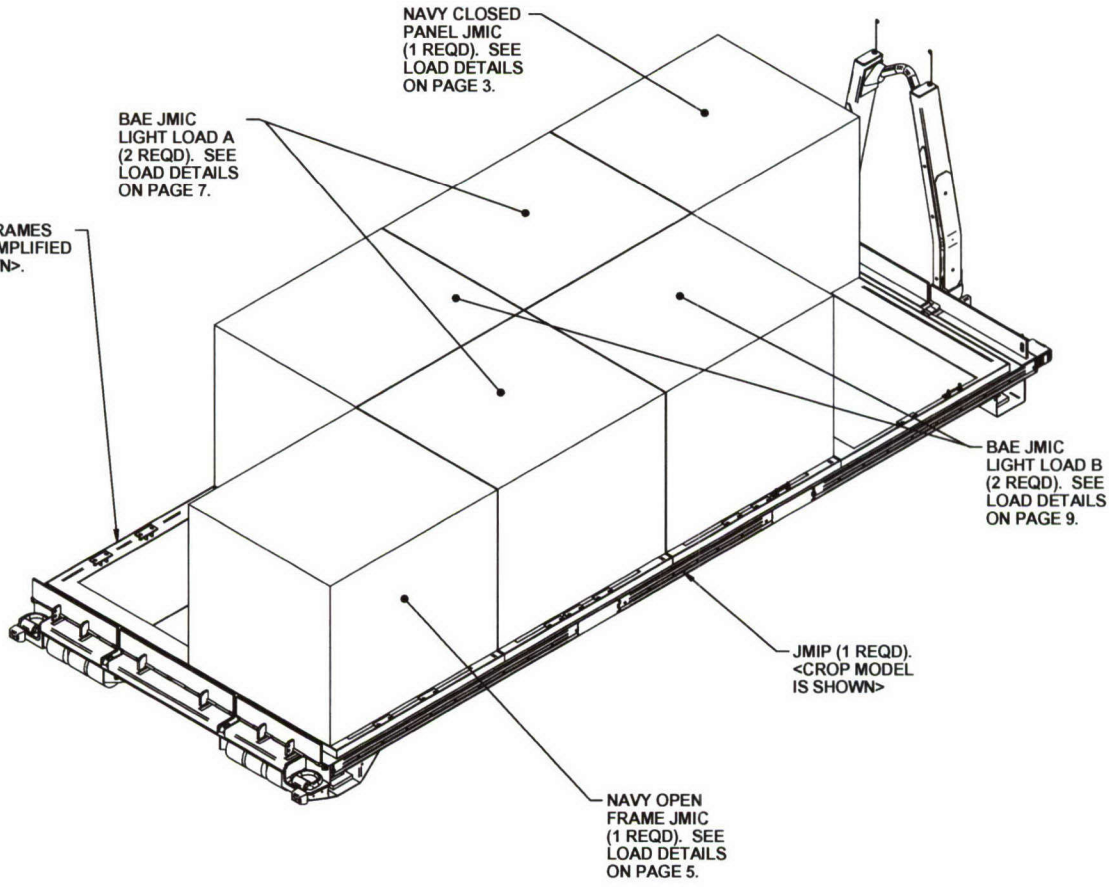
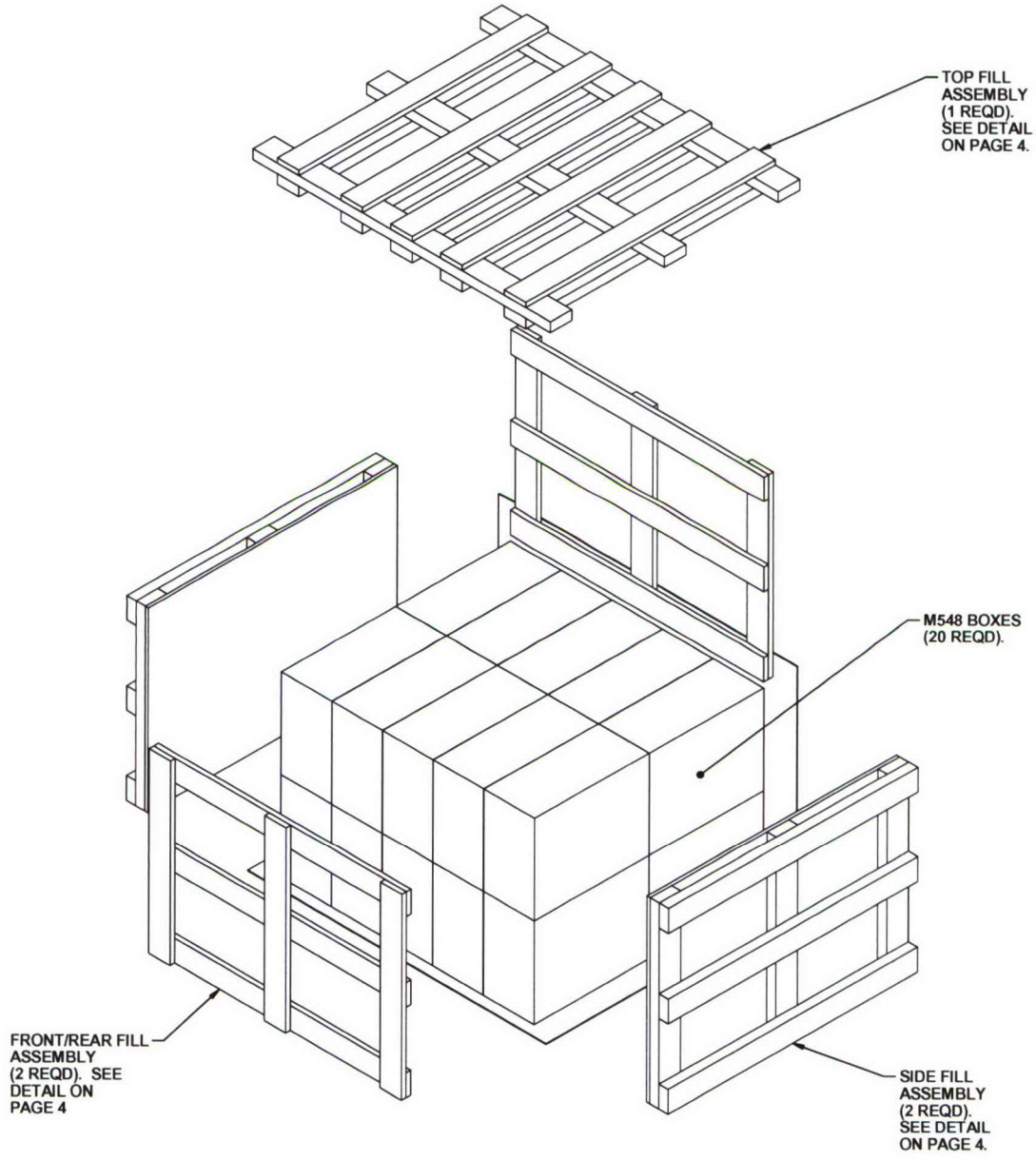


ISOMETRIC VIEW

LOAD AS SHOWN

ITEM	QUANTITY	WEIGHT (APPROX)
NAVY PANEL JMIC	1	2,971 LBS
NAVY FRAME JMIC	1	2,916 LBS
BAE JMIC (4 BOXES)	2	1,832 LBS
BAE JMIC (8 BOXES)	2	2,792 LBS
INTERFACE FRAMES	4	580 LBS
JMIP		3,800 LBS
TOTAL WEIGHT		14,891 LBS (APPROX)

6 JMIC UNIT LOAD ON JOINT MODULAR INTERMODAL PLATFORM (JMIP)

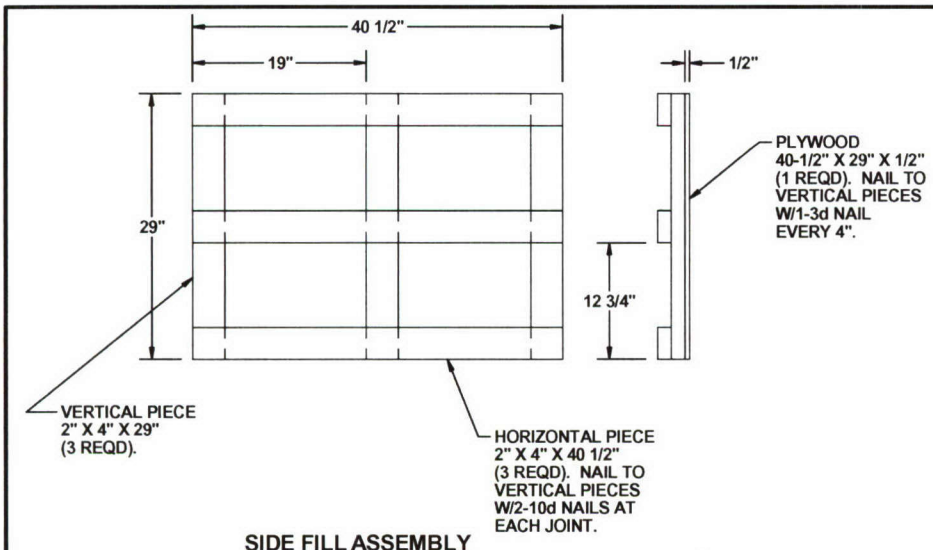


NAVY CLOSED PANEL JMIC UNIT

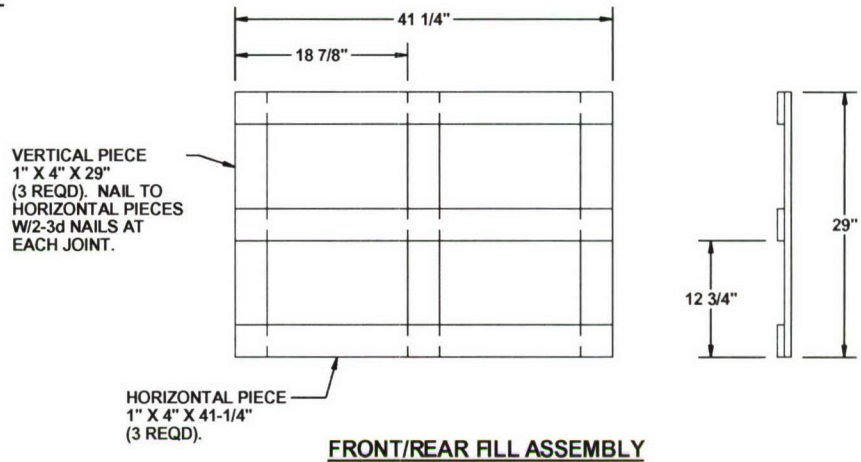
20 M548 BOXES @ 125 LBS	2,500 LBS
DUNNAGE	146 LBS
CLOSED PANEL NAVY JMIC	325 LBS
TOTAL WEIGHT	2,971 LBS (APPROX)
CUBE	56.4 CU FT (APPROX)

BILL OF MATERIAL

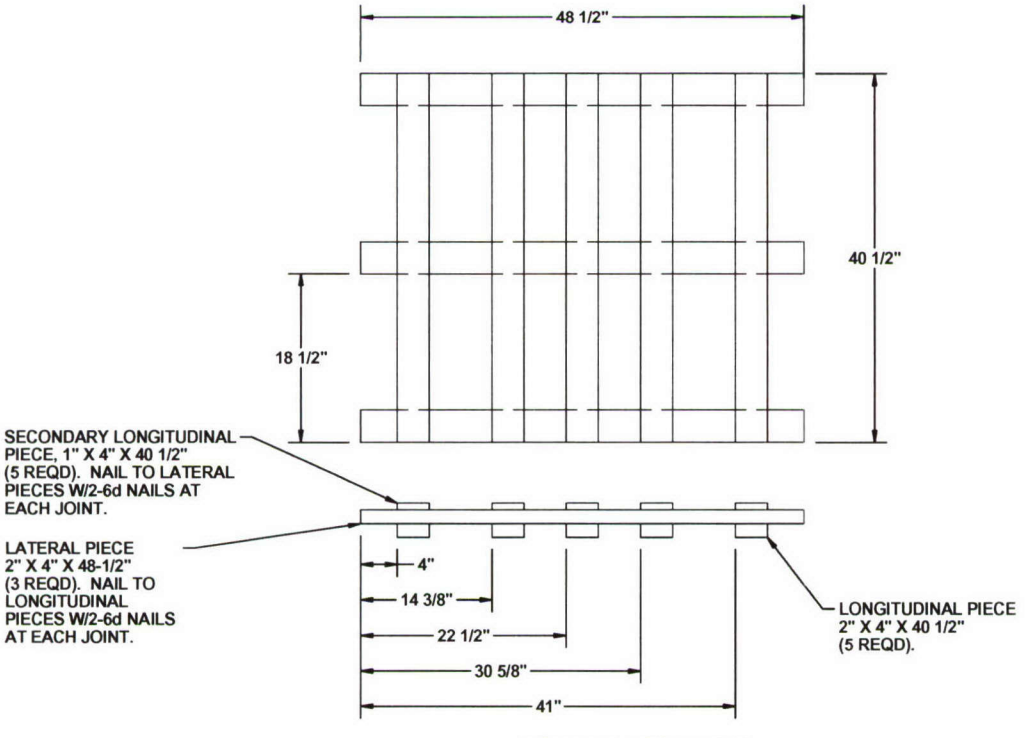
LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	52	18
2" X 4"	64	43
NAILS	**NO. REQD**	**POUNDS**
3d (1-1/4")	84	.16
6d (2")	60	.35
10d (3")	36	.54
NAVY PANEL JMIC	1 REQD	325 LBS
1/2 PLYWOOD	17 SQ FT	23 LBS



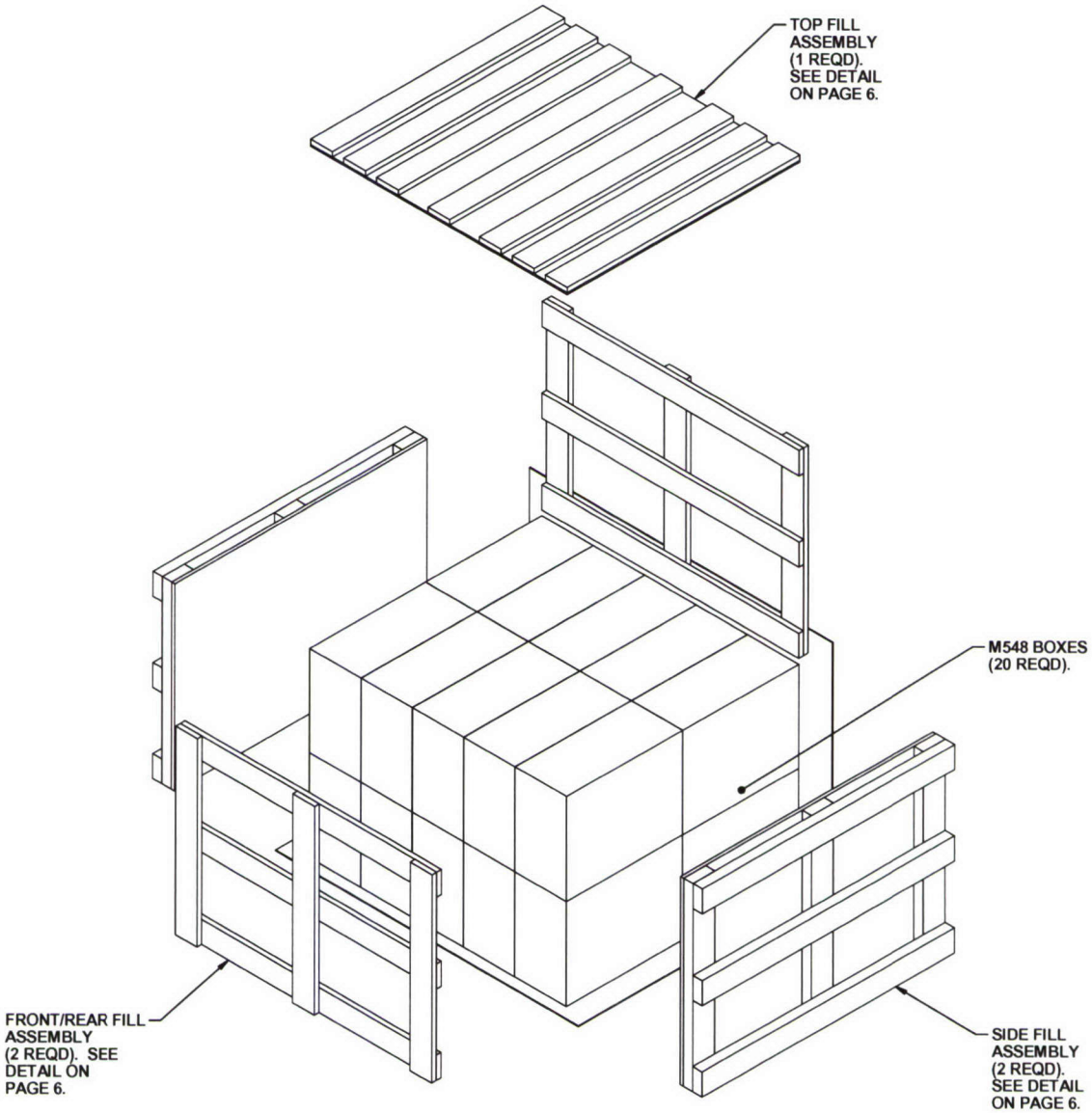
SIDE FILL ASSEMBLY
(2 REQD)



FRONT/REAR FILL ASSEMBLY
(2 REQD)



TOP FILL ASSEMBLY
(1 REQD)



NAVY OPEN FRAME JMIC UNIT

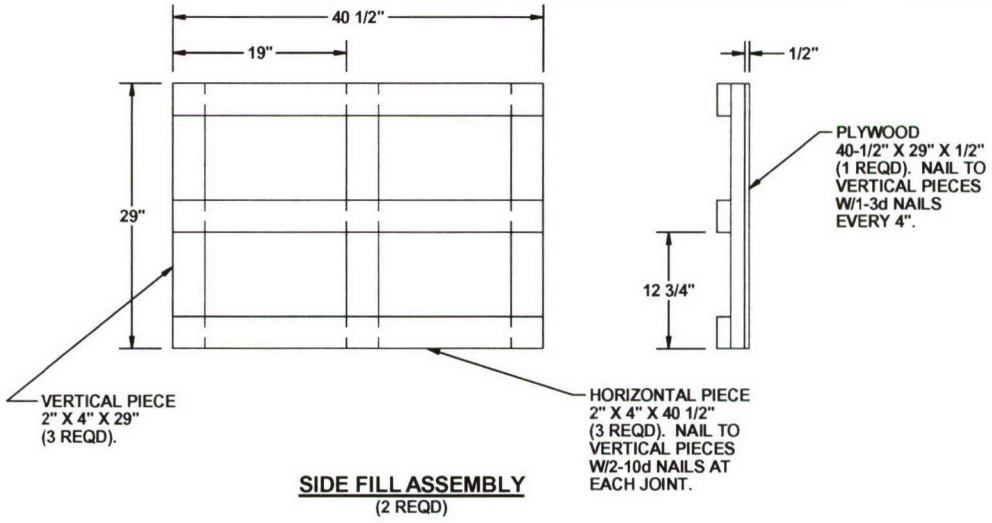
STRAPPING NOT SHOWN, SEE STRAPPING DETAIL 1 & 2 ON PAGE 7 FOR FURTHER INFORMATION.

20 M548 BOXES @ 125 LBS	2,500 LBS
DUNNAGE	127 LBS
OPEN FRAME NAVY JMIC	285 LBS
TOTAL WEIGHT	2,912 LBS (APPROX)
CUBE	56.4 CU FT (APPROX)

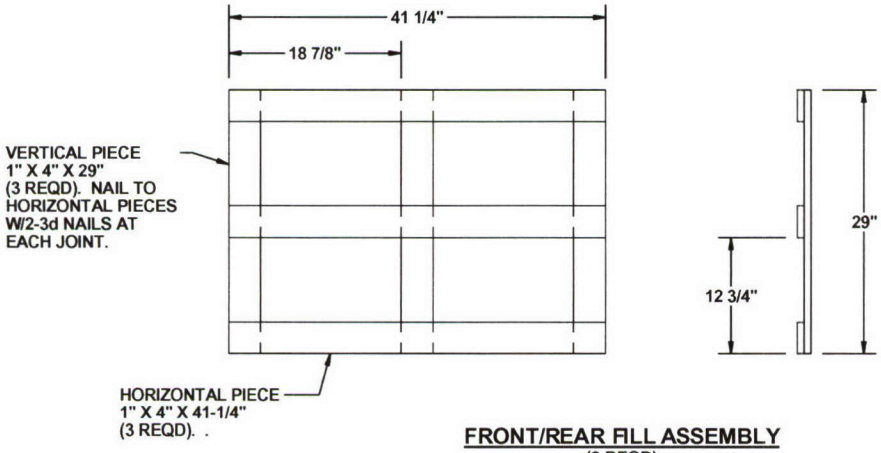
BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
1" X 4"	57	19
2" X 4"	35	24
NAILS	**NO. REQD**	**POUNDS**
3d (1-1/4")	126	.23
10d (3")	36	.55

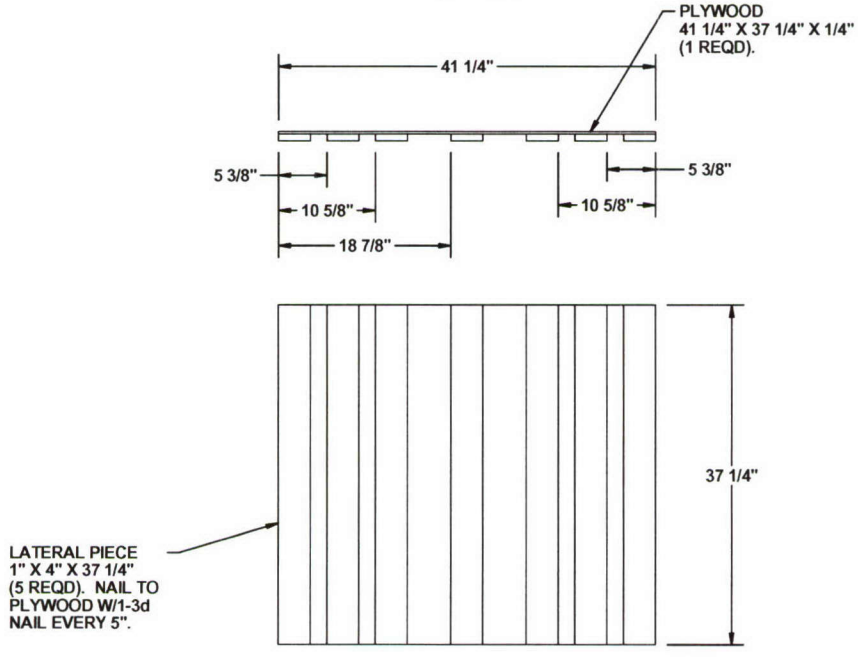
NAVY OPEN FRAME JMIC	1 REQD	285 LBS
PLYWOOD, 1/4	11 SQ FT	8 LBS
PLYWOOD, 1/2	17 SQ FT	23 LBS
STEEL STRAPPING, 1-1/4"	56' REQD	9 LBS
SEAL FOR 1-1/4" STRAPPING	4 REQD	NIL



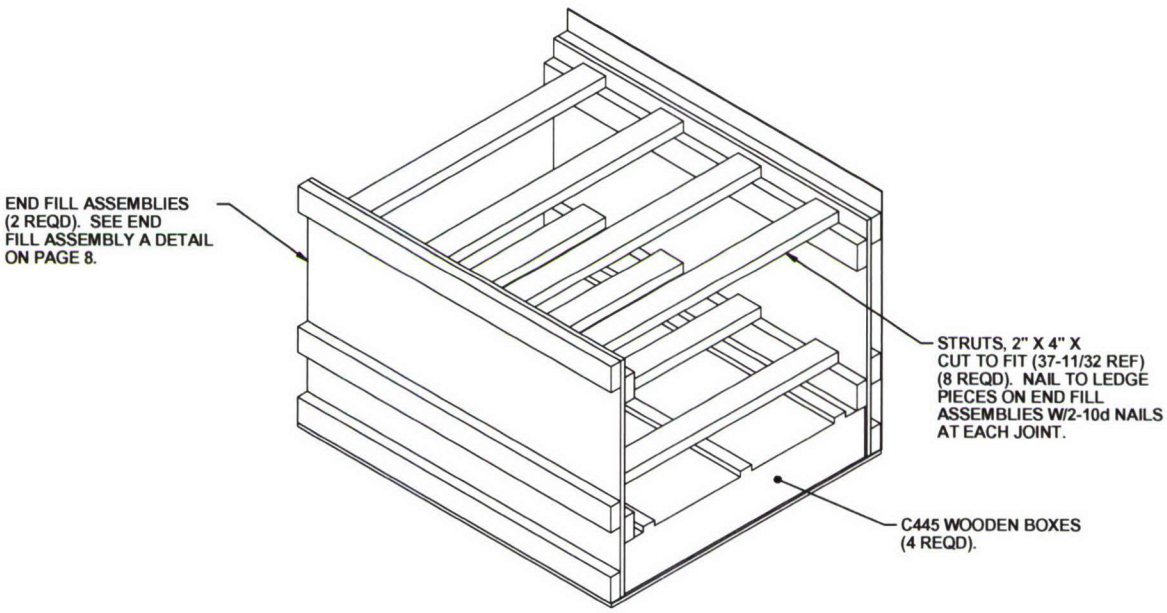
SIDE FILL ASSEMBLY
(2 REQD)



FRONT/REAR FILL ASSEMBLY
(2 REQD)



TOP FILL ASSEMBLY
(1 REQD)



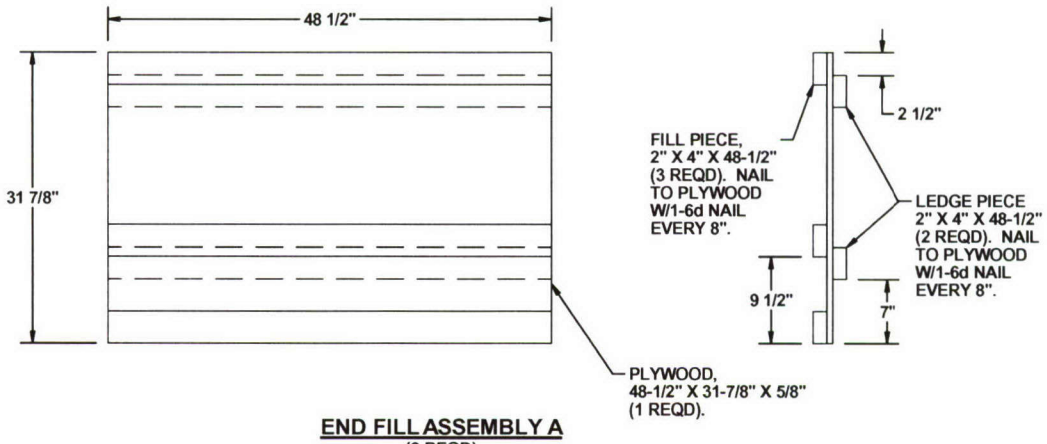
BAE JMIC UNIT - LIGHT LOAD A

(2 REQD)

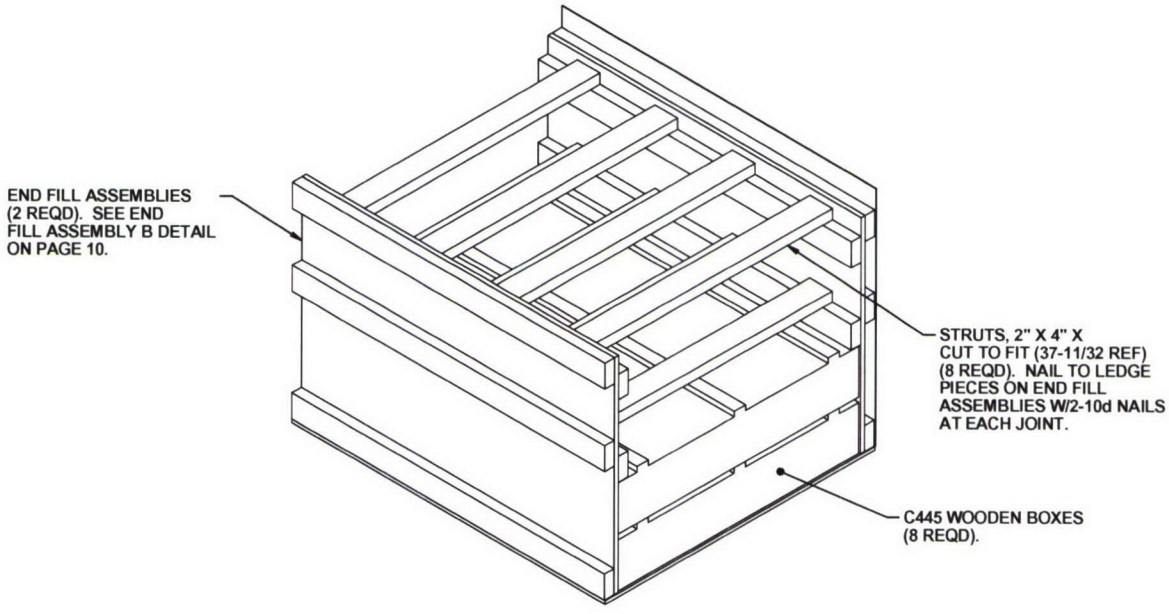
4 C445 BOXES @ 120 LBS	480 LBS
DUNNAGE	126 LBS
BAE JMIC	310 LBS
TOTAL WEIGHT	916 LBS (APPROX)
CUBE	56.7 CU FT (APPROX)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	66	44
NAILS	**NO. REQD**	**POUNDS**
6d (2")	60	.35
10d (3")	32	.48
BAE JMIC	1 REQD	310 LBS
5/8 PLYWOOD	22 SQ FT	37 LBS



END FILL ASSEMBLY A
(2 REQD)

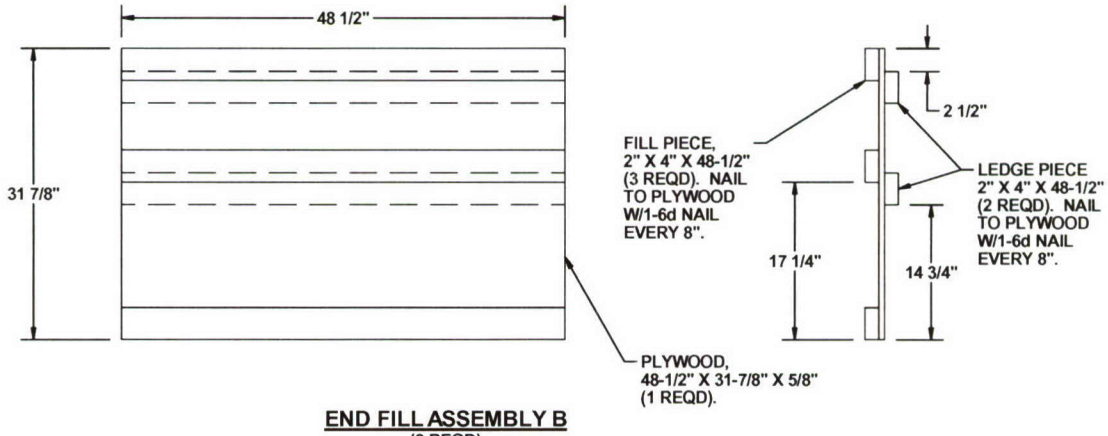


BAE JMIC UNIT - LIGHT LOAD B
(2 REQD)

8 C445 BOXES @ 120 LBS	960 LBS
DUNNAGE	126 LBS
BAE JMIC	310 LBS
TOTAL WEIGHT	1,396 LBS (APPROX)
CUBE	56.7 CU FT (APPROX)

BILL OF MATERIAL

LUMBER	LINEAR FEET	BOARD FEET
2" X 4"	66	44
NAILS	**NO. REQD**	**POUNDS**
6d (2")	60	.35
10d (3")	32	.48
BAE JMIC	1 REQD	310 LBS
5/8 PLYWOOD	22 SQ FT	37 LBS



END FILL ASSEMBLY B
(2 REQD)